

**REMARKS**

Claims 12, 21 and 22 were rejected under 35 U.S.C. §102(b) as being anticipated by one of EP 0 196 655 or Nagano et al. (U.S. 5,008,070) or Aoyama et al. (U.S. 4,689,195). Claims 13 to 17 were rejected under 35 U.S.C. §102(b) as being anticipated by either one of Nagano et al. (U.S. 5,008,070) or Aoyama et al. (U.S. 4,689,195). Claim 20 was rejected under 35 U.S.C. §102(b) as being anticipated by Aoyama et al. (U.S. 4,689,195). Claims 18 to 20 were rejected under 35 U.S.C. §103(a) as being unpatentable over either one of Nagano et al. (U.S. 5,008,070) or Aoyama et al. (U.S. 4,689,195).

Claims 12 to 15, 17 to 20 and 22 have been amended. Support for claims 12 and 22 can be found in original claim 13, for example. Support for claim 13 can be found in the Substitute Specification on page 8, lines 1 to 6, for example. Support for claims 17 to 20 can be found in the Substitute Specification on page 5, lines 4 to 9, for example.

Claims 23 to 25 have been added.

Reconsideration of the application based on the following remarks is respectfully requested.

**35 U.S.C. §102 Rejections**

Claims 12, 21 and 22 were rejected under 35 U.S.C. §102(b) as being anticipated by one of EP 0 196 655 or Nagano et al. (U.S. 5,008,070) or Aoyama et al. (U.S. 4,689,195).

Claims 12 and 22 have been amended to include the limitations of claim 13.

Withdrawal of the rejections to claim 12, 21 and 22 is respectfully requested

Claims 13 to 17 were rejected under 35 U.S.C. §102(b) as being anticipated by either one of Nagano et al. (U.S. 5,008,070) or Aoyama et al. (U.S. 4,689,195).

It is believed that the Office Action intended to cite Nagano et al. and incorrectly cited the application number. The application number for Nagano et al. is U.S. 5,249,211 and was incorrectly cited in the Office Action as U.S. 5,008,070. If this is not the case, the applicant requests further clarification. Nagano et al. discloses “a plurality of kinds of fuel rods 12a to 12c having differences in their fuel enrichments are arranged in the channel box 11 as fuel rods 12, ... in which the fuel rods are classified into first, second, and third fuel rods 12a, 12b and 12c in accordance with the distribution of the enrichments.” (Col. 7, lines 35 to 41).

Aoyama et al. discloses a fuel assembly “in that the mean value of the quantity of the fissionable material loaded or packed in the fuel rod, per unit fuel rod, of the fuel rods of the outermost or peripheral layer is lowered than that of the other fuel rods of the other portions of the fuel assembly.” (Col. 1, lines 56 to 61).

The limitations of original claim 13 have been added to claim 12. Claim 13 has been amended to recite a different limitation than previously presented.

Amended claim 12 recites “a fuel assembly for a pressurized water nuclear reactor, comprising:

fuel rods which are arranged at nodes of a substantially regular network having a polygonal outer contour, the fuel rods containing uranium which is enriched in isotope 235 and not containing any plutonium before the assembly is used in a reactor, wherein the rods are distributed in that least:

a first central group which is constituted by fuel rods which have a first level of nuclear reactivity, and

an outer peripheral layer of fuel rods distributed in:

a second group of fuel rods that extend along faces of the outer contour of the network and that have a second level of nuclear reactivity that is strictly less than the first level of nuclear reactivity; and

a third group of fuel rods that are arranged at corners of the outer contour of the network and that have a third level of nuclear reactivity that is strictly less than the second level of nuclear reactivity.”

Both Nagano et al and Aoyama et al. fail to teach or show “a fuel assembly for a pressurized water nuclear reactor,” as recited in amended claim 12. Both teach or disclose fuel assemblies for boiling water reactors which are different. As acknowledged in the background section of the specification, zoned assemblies have been known in the BWR field or in the PWR field for MOx fuel assemblies. Zoned configurations have not been used in PWR fuel assemblies containing UO<sub>2</sub> fuel and at the time of the invention one of skill in the art would have no reason to do so.

Withdrawal of the rejection to claims 13 to 17 is under 35 U.S.C. §102(b) is respectfully requested.

Claim 20 was rejected under 35 U.S.C. §102(b) as being anticipated by Aoyama et al. (U.S. 4,689,195).

Claim 12 has been amended to include the limitations of claim 13. In light of this amendment, withdrawal of the rejection is respectfully requested.

#### 35 U.S.C. §103 Rejections

Claims 18 to 20 were rejected under 35 U.S.C. §103(a) as being unpatentable over either one of Nagano et al. (U.S. 5,008,070) or Aoyama et al. (U.S. 4,689,195).

Claim 12 has been amend to include the limitations of claim 13. In light of the amendment above withdrawal of the rejections to claims 18 to 20 is respectfully requested.

Furthermore, the enrichment levels of the fuel rods is not a matter of design/optimization. Neither Nagano et al. nor Aoyama et al. teach enrichment levels of the fuel rods in a pressurized water reactor. As admitted by the Office Action, these levels depend upon multiple constraints.

Withdrawal of the rejection to claim 18 to 20 under 35 U.S.C. §103(a) is respectfully requested.

#### New Claims

Claims 23 to 25 have been added. Support for claims 23 to 25 can be found in the specification on page 6, line 1 to page 7, line 2, for example.

It is respectfully submitted that this claim is patentable


CONCLUSION

It is respectfully submitted that the application is in condition for allowance and applicants respectfully request such action.

If any additional fees are deemed to be due at this time, the Assistant Commissioner is authorized to charge payment of the same to Deposit Account No. 50-0552.

Respectfully submitted,

DAVIDSON, DAVIDSON & KAPPEL, LLC

By:   
William C. Gehris (Reg. No. 38,156)

Davidson, Davidson & Kappel, LLC  
485 Seventh Avenue, 14<sup>th</sup> Floor  
New York, New York 10018  
(212) 736-1940